Using mortality data to improve the quality and safety of patient care

June 2017

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4.0	20/12/2013	4th publication
3.0	20/09/2013	3rd publication
2.1	28/08/2013	Figures revised in line with national guidance
1.0	22/03/2013	1st publication

Contents

Publication notes

This document is the Health Board's 17th release of data relating to mortality.

As in previous publications, the Health Board is publishing other contextual mortality data sourced from the Office for National Statistics (ONS). This provides context to the risk adjusted figures, and further evidence of the quality of care provided. As this data is published less frequently, it is now presented as a separate document.

All data that appear in the document are also available as Excel tables and charts on our web site[1].

Data has been sourced from the All Wales Benchmarking system and ONS.

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[1]http://www.wales.nhs.uk/sitesplus/861/page/68460

Introduction

Quality and Safety

Betsi Cadwaladr University Health Board is committed to delivering safe and high quality healthcare services. Everyone who works for the Health Board has a part to play in driving up standards. We must always put the safety of our patients at the heart of everything we do. To support this, the Board is engaged in a wide range of activities to ensure patient safety, and provide patients with appropriate assurance about the quality and safety of our services.

A key element of this continual cycle of quality improvement is the analysis and understanding of mortality information. This, our 17th publication, contains updated figures for measures up to December 2016. For measures that do not rely on clinical coding, later data is available.

Why are we monitoring these figures?

The Health Board monitors mortality on a regular basis, with any concerns investigated. The focus is on continuous quality improvement and timely intervention to ensure the best outcome for our patients.

Focussed on learning we firmly believe that every death deserves a review and have put extensive processes in place to ensure this happens.

What are we measuring?

Crude Mortality

A crude (or unadjusted) mortality rate takes no account of risk factors. The definition is therefore relatively simple (actual deaths in a month ÷ total discharges per month x 100). This figure, stated as a rate per 100 discharges naturally varies by the population served, as well as the mix of specialties provided – for example, Ysbyty Glan Clwyd has a Cancer Treatment Centre, and the time of year. As crude mortality is not affected by the clinical coding process, more recent data is provided.

Common Medical Emergencies

Stroke, heart attack and hip fracture are common medical emergencies associated with mortality. Monitoring mortality for these conditions provides us with further useful information on the quality of care in our hospitals. All three conditions are more prevalent in older people whose health may be more fragile so death cannot always be avoided.

Clinical Coding

Clinical Coding is the process of transcribing a patient's diagnosis and treatment from their case notes onto the Patient Administration System. The quality and timeliness of this data is essential to support reporting. Condition specific indicators reported in this document, such as stroke, heart attack, hip fracture, and the risk adjusted mortality indicators, rely on the clinical coding to define the condition and treatment.

The national target is 95% completeness for any given month within 3 months of episode end date, and 98% for any rolling 12 months within 3 months of episode end date. The Health Board is not achieving the timeliness of these targets at present. Work is underway to recover this position. For the 12 month period covered by this report, the Health Board achieved 90.5% coding completeness.

What does this data tell us?

Health Board wide

For the 12 months to April 2017, the average number of deaths per month was 285 across the Health Board. The crude mortality rate for the 12 months to April 2017 was 1.88% (1 in 53 patients), which is on a par with the Welsh average at 1.93% (1 in 52 patients).

BCUHB Crude Mortality (rolling)
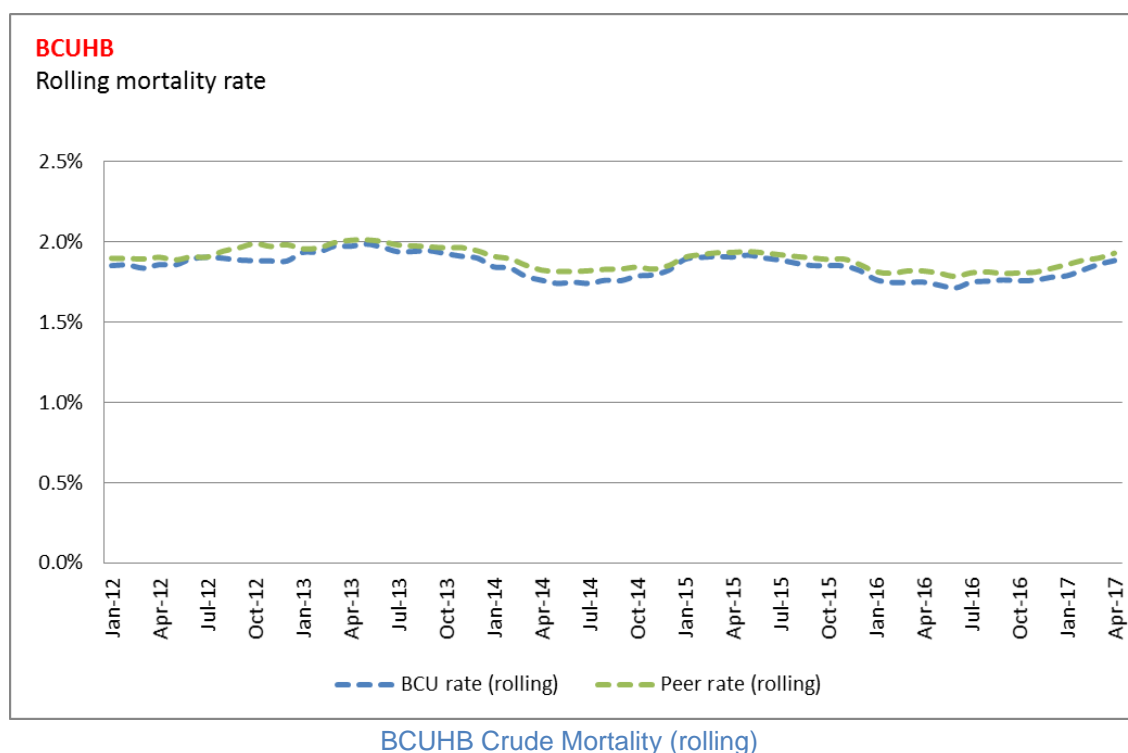
The following chart shows the monthly crude mortality for the Health Board as a control chart, with standard deviations of the mean 95% of the time. In the chart below, there are two points (Jan-13 and Jan-15) where there were more deaths than expected (based on the chart data). Previous analysis identified the cause of these to be Influenza B in Jan-13 and a mutation in the flu strain in Jan-15.
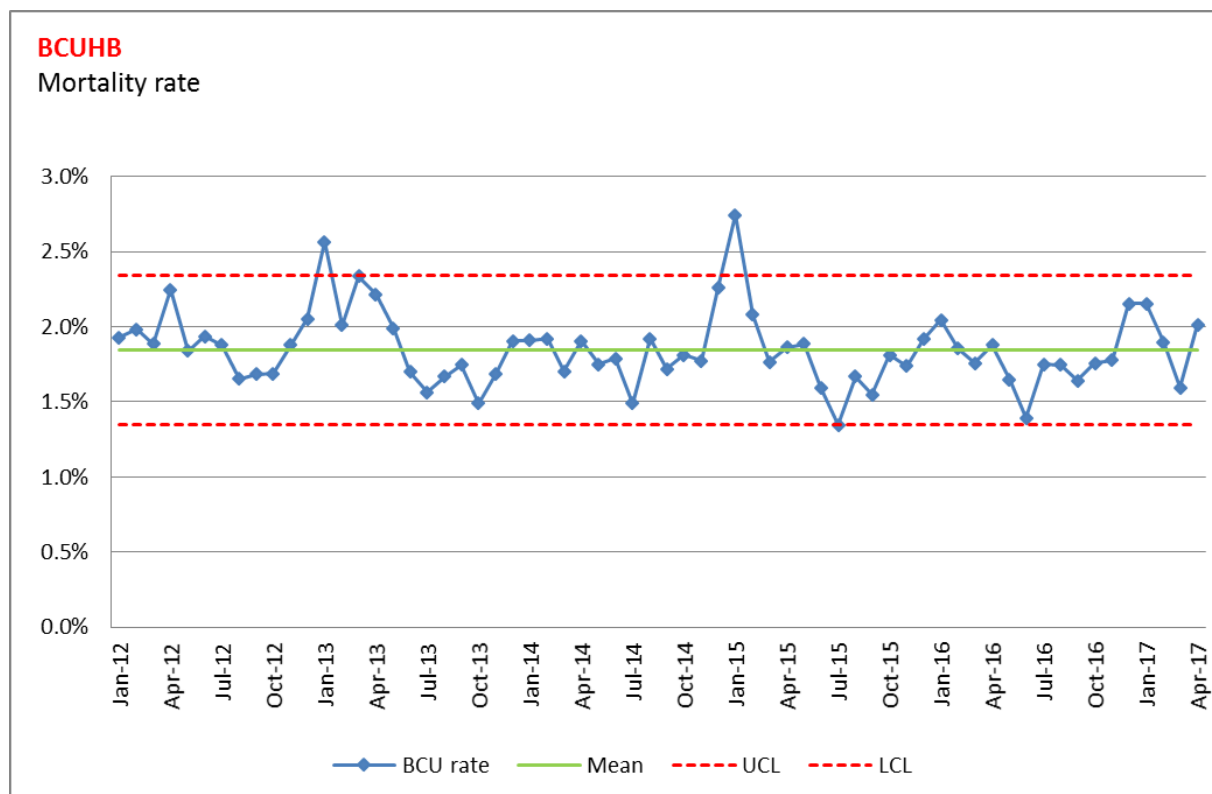

BCUHB Crude Mortality (monthly)

Mortality following Surgery

The following two indicators present information on mortality within 30 days of elective (planned) or non-elective (emergency) surgery. As the measures are not risk adjusted, they will be affected by the type of surgery, and patient population.

In both elective and non-elective surgery, the mortality rate within 30 days is very low. The 12 months to December 2016 shows a mortality rate of 0.030% for elective surgery (1 in 3301 patients), which was worse than the Welsh average of 0.025% (1 in 4036 patients). For non-elective (emergency) surgery the rate was 1.51% (1 in 66 patients), which was better than the Welsh average of 1.61% (1 in 62 patients).
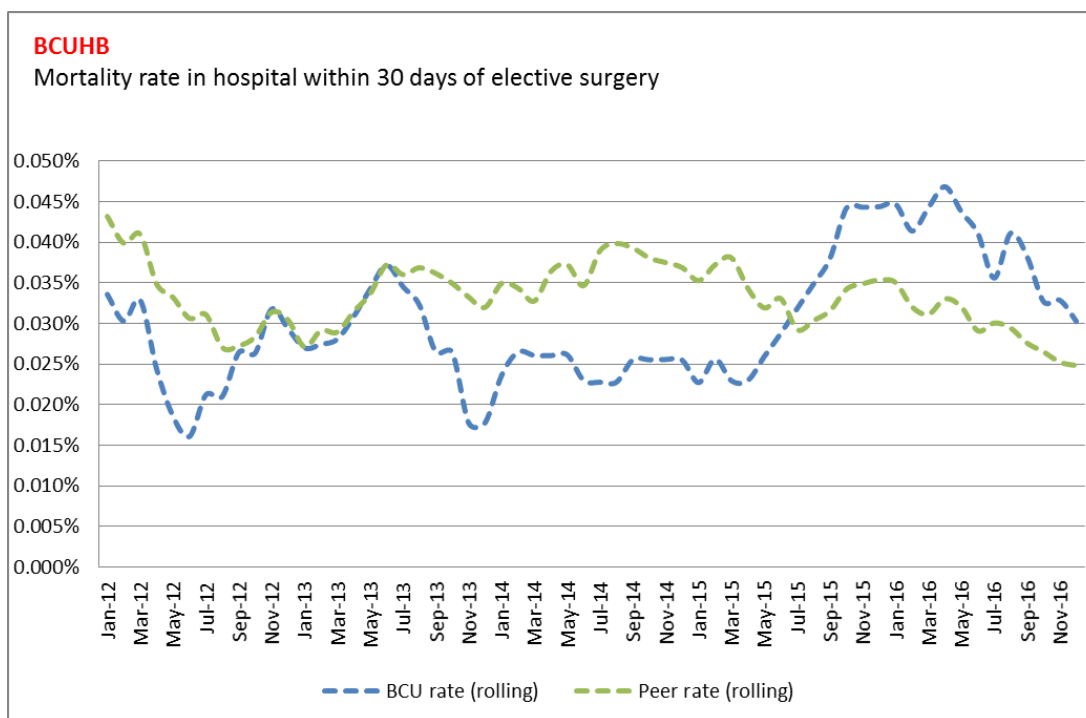
Elective Surgery Mortality
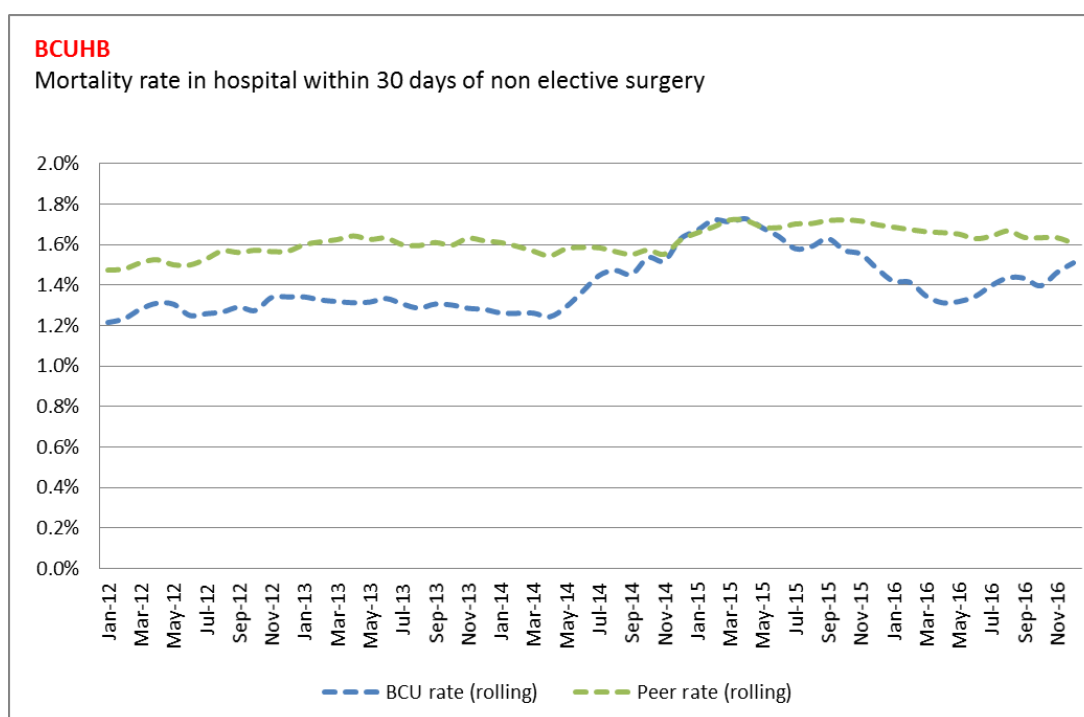
Non-elective Surgery Mortality

Proportionate to the numbers undergoing surgery, the numbers dying are very low. For this reason a single death can have an apparently disproportionate impact. Nevertheless, the Health Board gives this close attention.

The following chart shows the monthly elective mortality as a control chart with mean, upper and lower control limits. As August 2016 is outside the control limits (the rate corresponds to three deaths), the data is being examined further.

BCUHB
Mortality rate in hospital within 30 days of elective surgery

Monthly Elective Surgery Mortality (Control Chart)
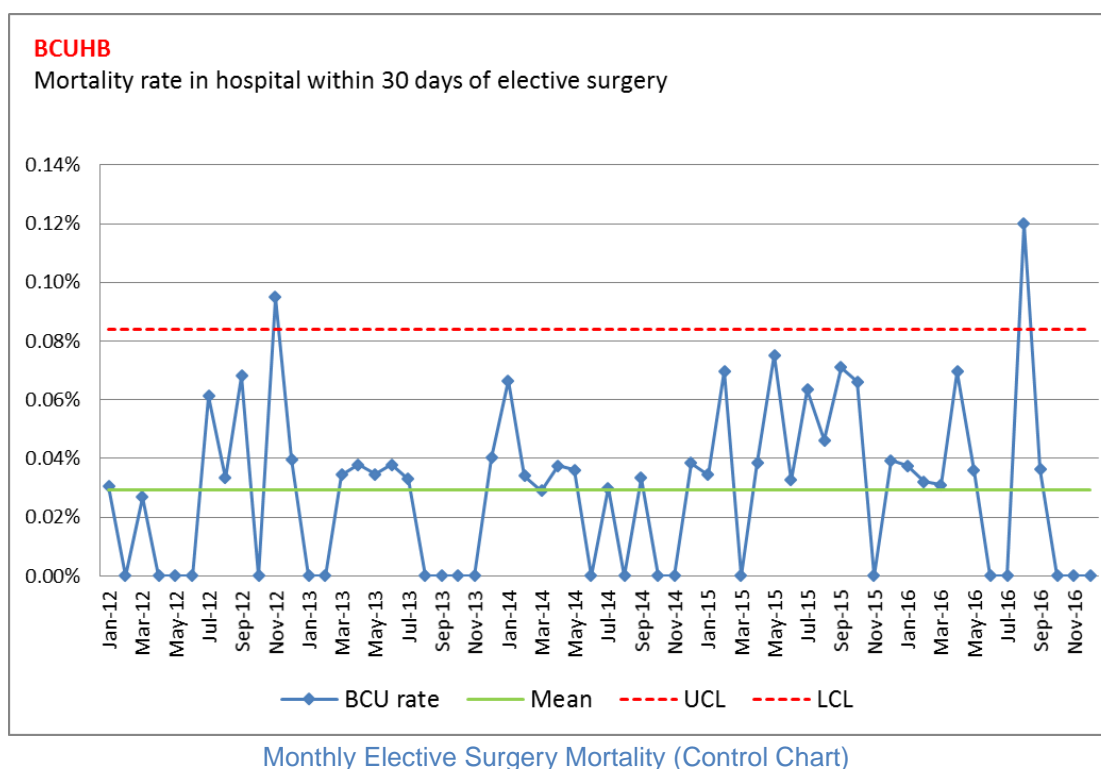
Common medical emergencies

The following indicators present information on mortality following specific medical emergencies (stroke, hip fracture, and heart attack). This provides some information on the quality of care in each hospital. All three conditions are more prevalent in older people whose health may be more fragile so death cannot always be avoided. The charts show this data as a rolling 12 month average from January 2012 through to December 2016).
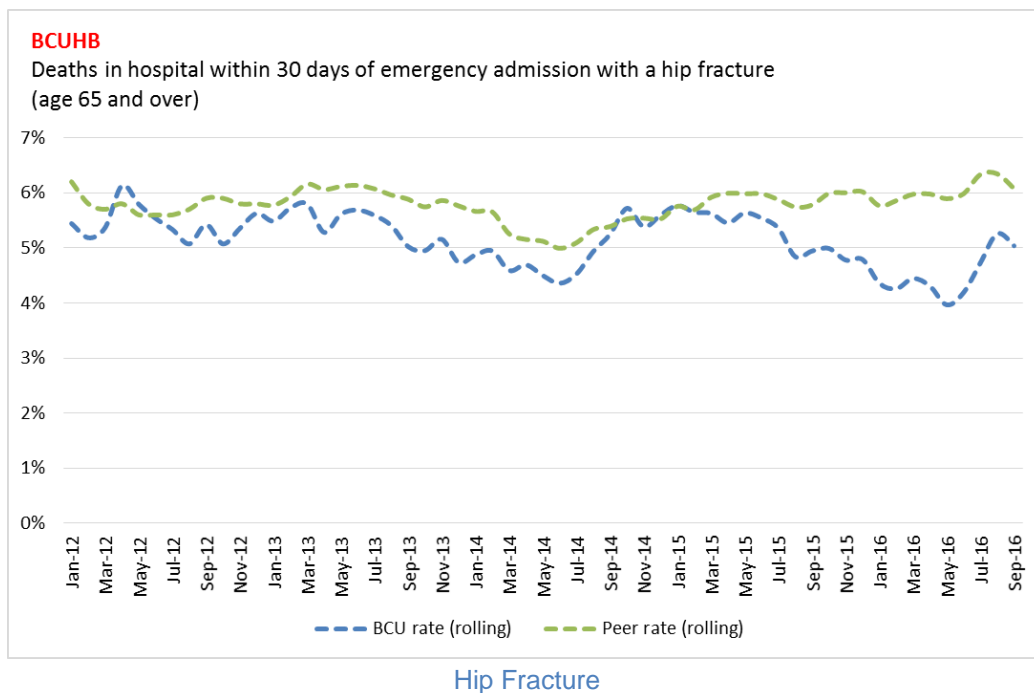
Stroke

The following chart shows the rolling 12 month mortality within 30 days of an admission following a stroke (January 2012 to December 2016). The latest data shows that 15.8% (1 in 6) patients died within 30 days of being admitted with a stroke, which is above the Welsh average at 13.1% (1 in 8). The Royal College of Physicians (RCP) prospective stroke audit produces mortality rate comparisons across the UK on an annual basis. The Health Board is comparable to the UK wide rate. SSNAP annual review of mortality, last published in March 2016, confirms the mortality rate in BCU is comparable to UK data. The current year 2016-17 data is due to be published in autumn 2017, with early indications that we are not an outlier. The Health Board has also engaged the RCP to review its practice, and have put in place robust action plans to support patients presenting with a Stroke.

BCUHB
Rolling 12 month mortality rate in hospital within 30 days of admission with a stroke


Stroke Mortality
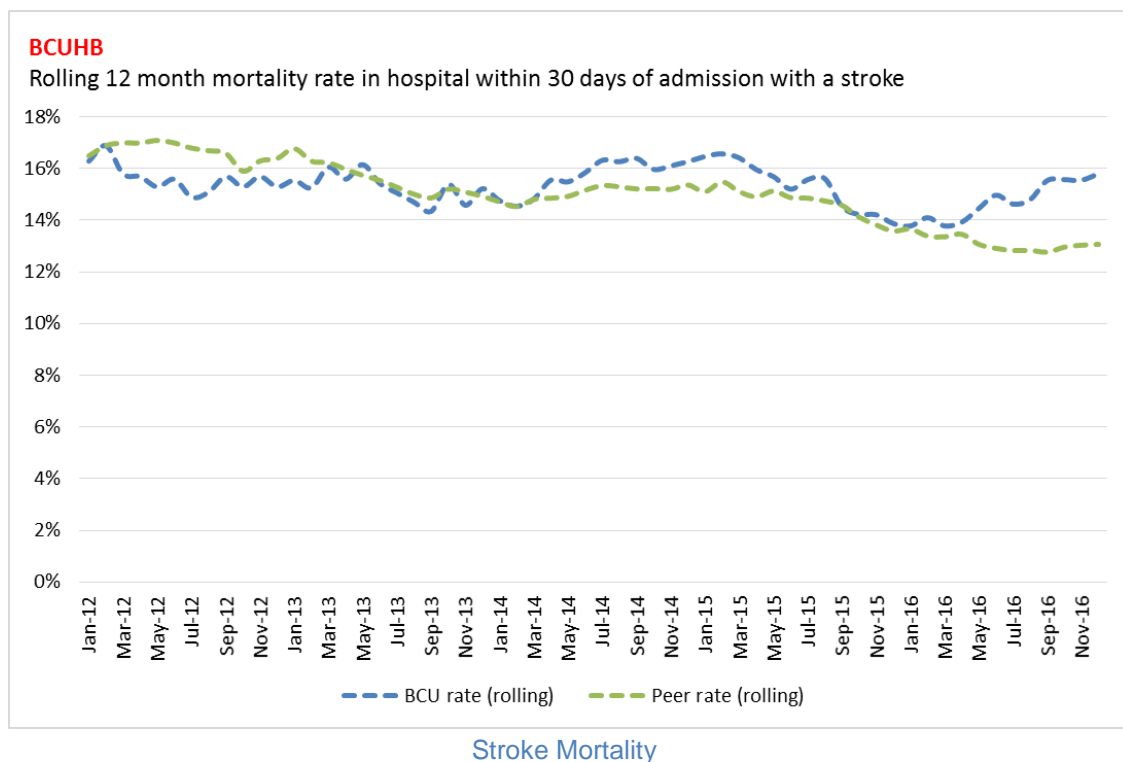
Hip Fracture

The following chart shows the rolling 12 months mortality within 30 days of admission following a hip fracture (for those aged 65 and over). The latest data (12 months to December 2016) shows that 5.5% of patients died (1 in 18 patients), which is better than the Welsh average at 5.8% (1 in 17 patients).

BCUHB
Deaths in hospital within 30 days of emergency admission with a hip fracture
(age 65 and over)

Hip Fracture

Heart Attack

The following chart shows the rolling 12 month mortality within 30 days of admission with a heart attack for patients aged 35 to 74. The latest data (12 months to December 2016) shows that 3.5% of patients died (1 in 28), which is lower than the Welsh average of 4.1% (1 in 24 patients). The Health Board participate in the Myocardial Ischaemia National Audit Project (MINAP), and through this closely monitor the quality of care and delivery of best standards. Working with the Cardiac Network improvements are evident but work continues to see this progress further.

BCUHB

Rolling 12 Month % Deaths in hospital within 30 days of emergency admission with a heart attack (MI) aged 35 to 74

Heart Attack
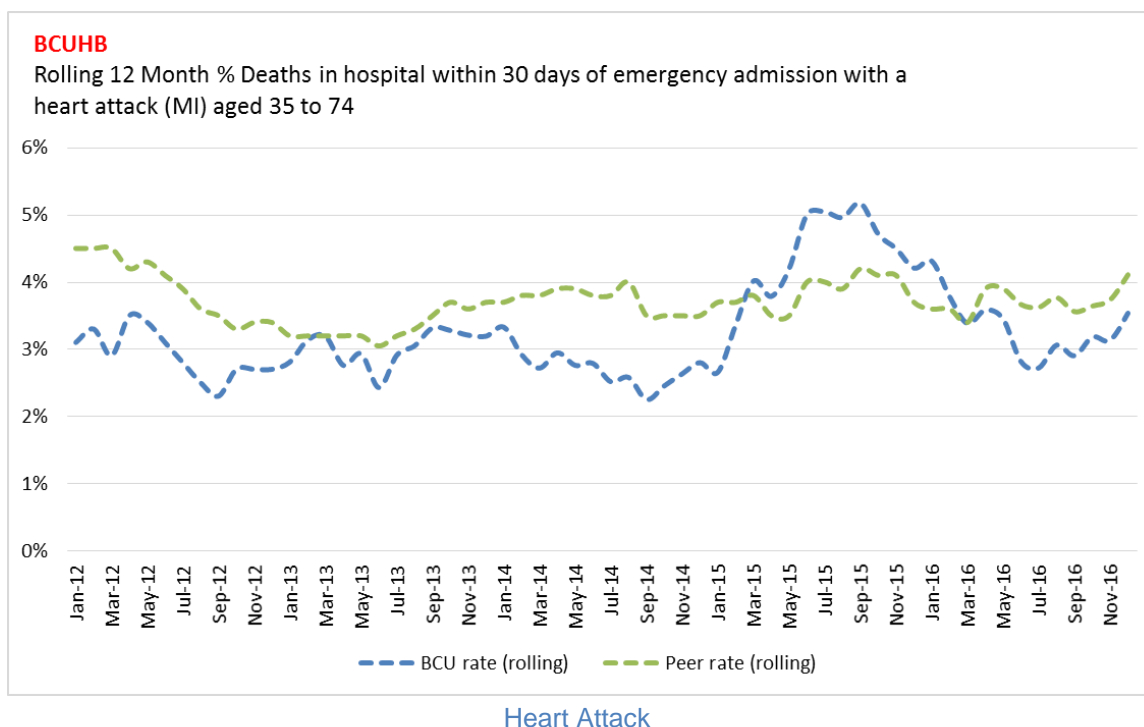
Emergency Department Mortality

The following chart shows the number of deaths per 10,000 attendances for each major Emergency Department (A&E). It should be emphasised the figures reported are a crude mortality, and unlike deaths elsewhere in the hospital, no attempt is made to 'standardise'. As such there is no accommodation for factors such as age and severity of illness, factors known to impact on the risk of death.
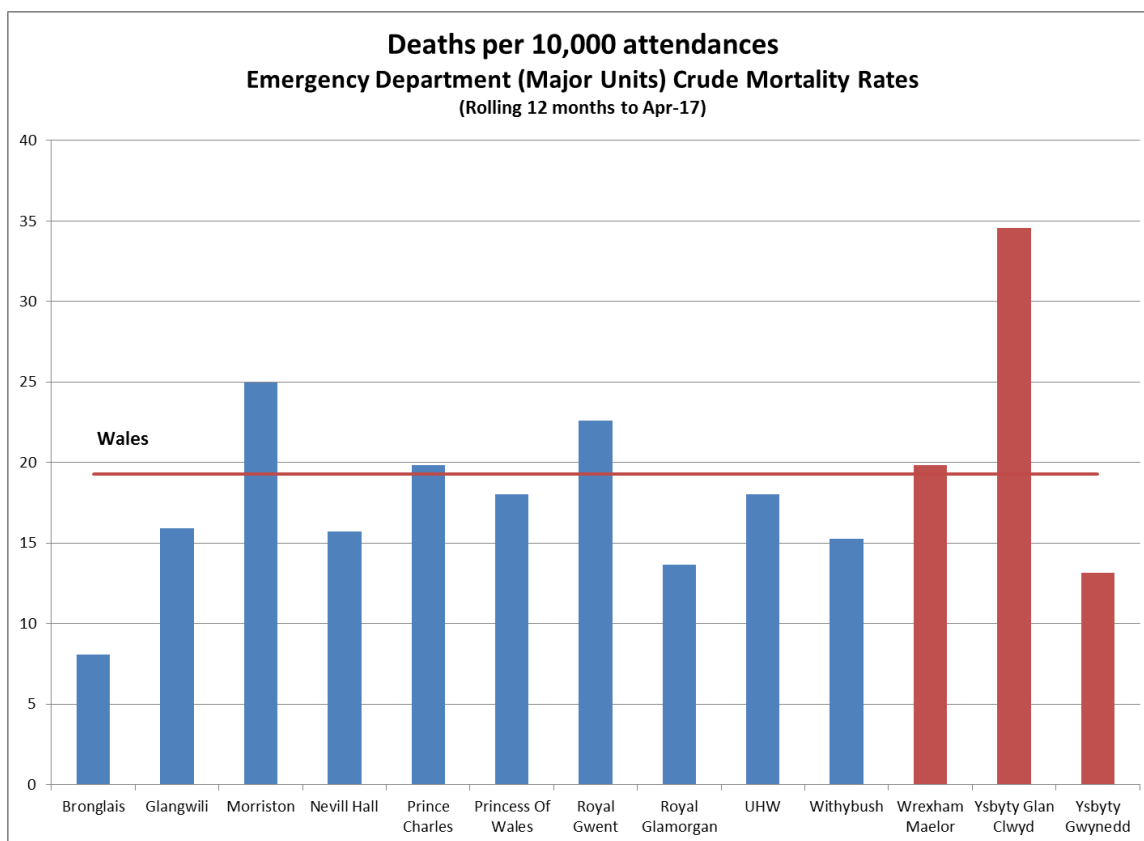
Figure 1: Emergency Department Mortality

Data is for a rolling 12 months to April 2017. The 3 major departments in North Wales are highlighted in red. The Welsh average is 19.3 deaths per 10,000 attendances. The latest data shows the highest number of deaths at Ysbyty Glan Clwyd (34.6 deaths per 10,000 attendances), whilst the lowest are at Bronglais.

The following chart shows the Emergency Department mortality per 10,000 attendances as a rolling 12 month figure. All three North Wales departments are shown, along with the All Wales figure.

Deaths per 10,000 attendances

Legend: Wrexham Maelor — Ysbyty Glan Clwyd — Ysbyty Gwynedd — — Wales
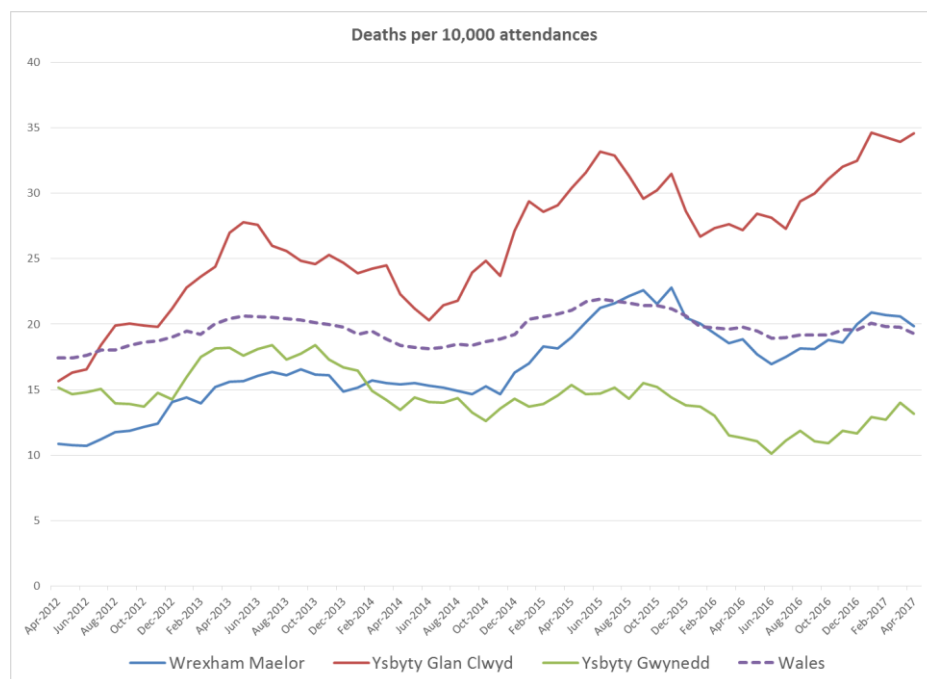
As in previous reports Glan Clwyd Hospital has for some time been an outlier. Subjected at Glan Clwyd to greater scrutiny, the following have been identified as significant contributors to the high reported rate.

- Patients brought into hospital in cardiac arrest, with very poor, if any prospect of survival.
- Dying Patients, who have reached the end of their lives yet, unfortunately, this has not been anticipated through formal advanced care planning or an agreed "Do Not Attempt Cardio-Pulmonary Resuscitation (DNACPR)" order.
- Very ill patients admitted under the medical team, dying before they reached a ward bed. This accounts for more than 50% of the ED deaths. Given the high pressure on the hospital, patients wait longer in the emergency department, and though throughout that time they have received treatment, a certain number will die. In numerical terms this means more are seen to die in the ED rather than in the main hospital.

Reassured through a number of audits that patient care has not been compromised, there is an understanding that the distribution of care and how this is counted are significant factors in the figure reported. Treating this very seriously the Hospital Management Team have commissioned a Task & Finish Group to address these issues and its anticipated improvements will be evident before the end of 2017.

Mortality by District General Hospital (DGH)

BCUHB provides major DGH services at three hospitals, Ysbyty Gwynedd, Glan Clwyd and Wrexham Maelor. The following sections detail mortality data for each hospital.

Ysbyty Gwynedd

For the 12 months to April 2017, the average number of deaths per month was 80 in Ysbyty Gwynedd. The following chart shows the rolling 12 monthly and individual monthly crude mortality figures (as a control chart with mean, and upper and lower control limits) between January 2012 and April 2017. The crude mortality for April 2017 was 1.82%, and the rolling 12 months was 1.42%. Increased mortality is to be expected in the winter months.
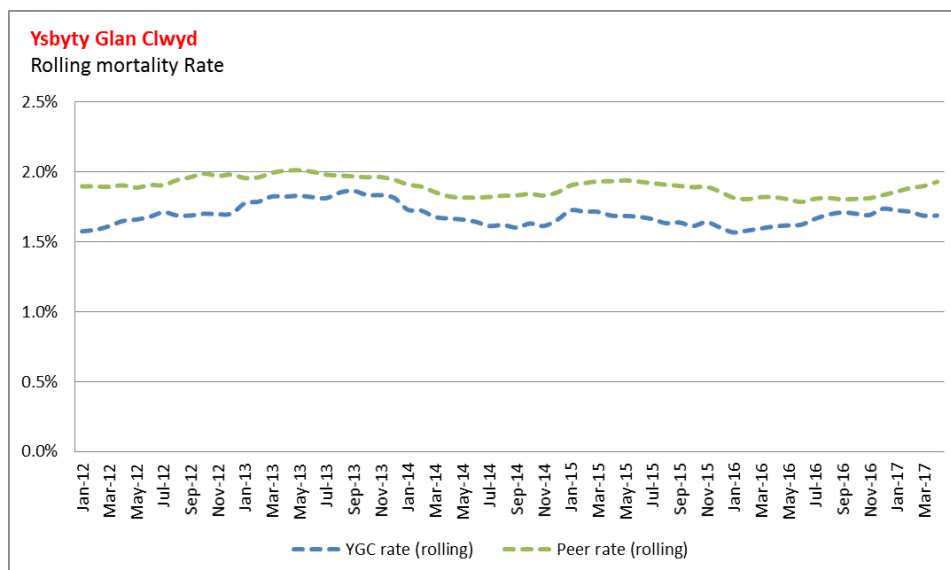

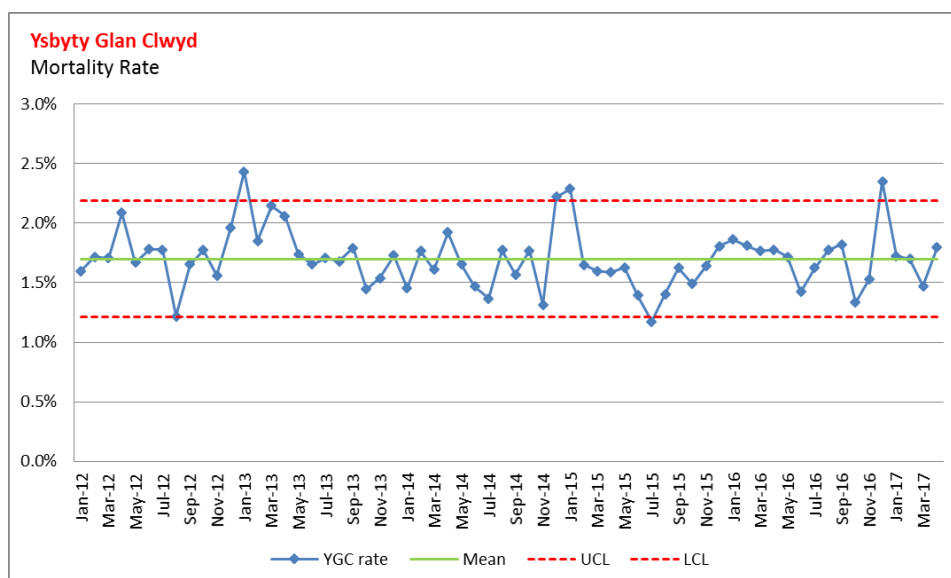Ysbyty Gwynedd Crude Mortality (rolling)
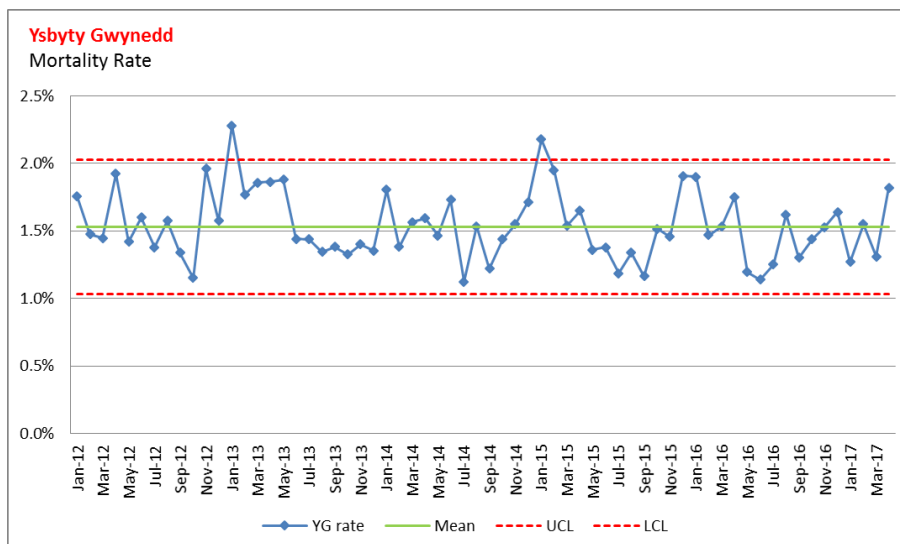
Ysbyty Gwynedd Crude Mortality (monthly)

Ysbyty Glan Clwyd

For the 12 months to April 2017, the average number of deaths per month was 81 in Ysbyty Glan Clwyd. The following charts shows the rolling 12 monthly crude mortality figures between January 2012 and April 2017, and the monthly mortality (as a control chart with mean, and upper and lower control limits). The crude mortality for April 2017 was 1.80%, and the rolling 12 months was also 1.69%. Increased mortality in the winter months is to be expected (note the spikes in Jan-13, Dec-14 and Jan-15).


Ysbyty Glan Clwyd Crude Mortality (rolling 12 months)

Ysbyty Glan Clwyd Crude Mortality (Monthly)

Wrexham Maelor Hospital

For the 12 months to April 2017, the average number of deaths per month was 83 at Wrexham Maelor. The following charts show the rolling 12 monthly and monthly (as a control chart with mean, and upper and lower control limits) crude mortality figures between January 2012 and April 2017. The crude mortality for April 2017 was 2.10%, and the rolling 12 months was 1.89%. Increased mortality is to be expected in the winter months.
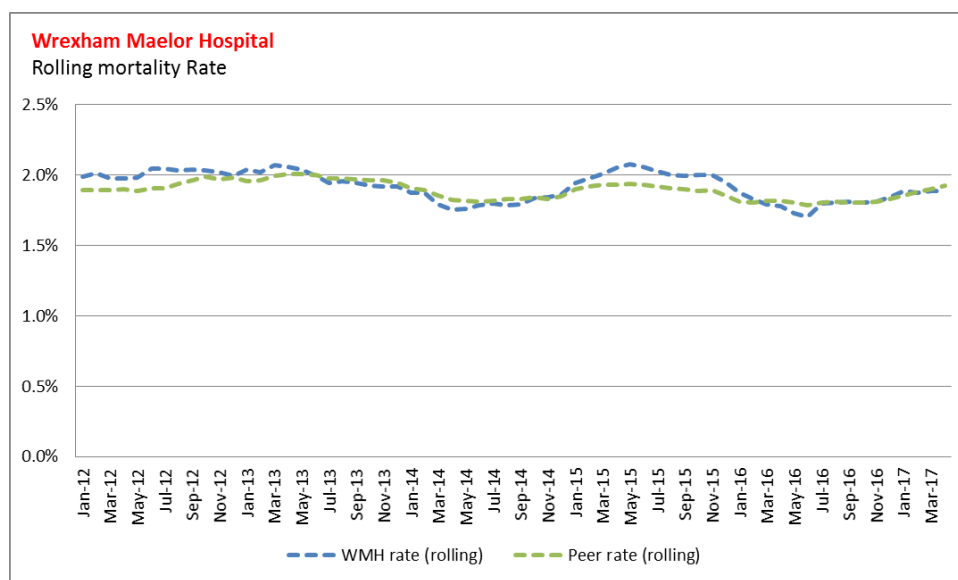
Wrexham Maelor Crude Mortality (rolling 12 months)
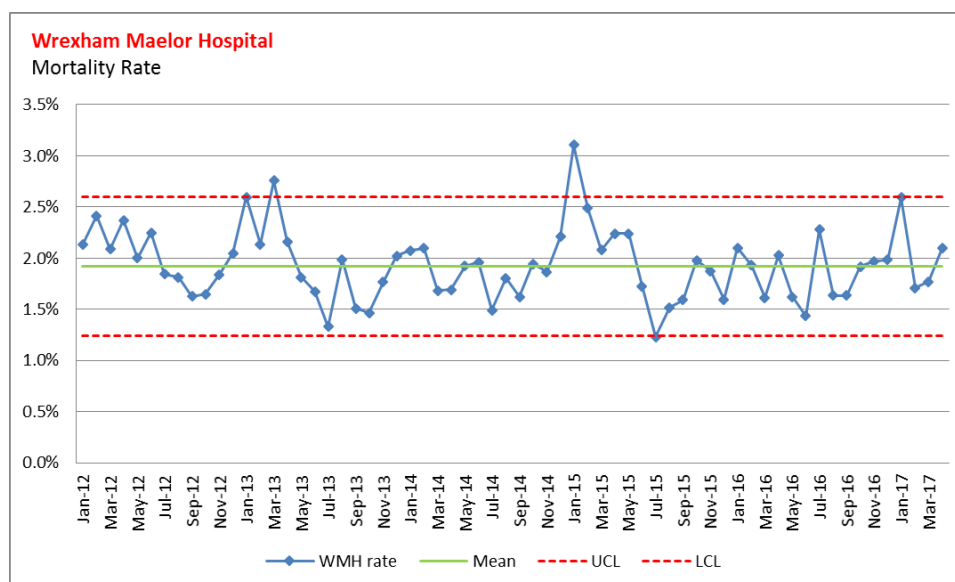
Wrexham Maelor Crude Mortality (monthly)

Other Mortality Indicators

Detailed, longer term analysis provided by Public Health Wales of other mortality indicators that are measured in Wales is available on our [web site](http://www.wales.nhs.uk/sitesplus/861/page/68460)[2].

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[2] http://www.wales.nhs.uk/sitesplus/861/page/68460